

CLAIMS

[1] A supercritical treatment method, comprising: dissolving an organometallic compound, in a fluorinated compound in a liquid state at room temperature under normal pressure, to prepare a solution; and introducing the solution into a supercritical fluid, to treat a substrate under a supercritical condition.

[2] A supercritical treatment method, comprising: dissolving an organic raw material in a solid state at room temperature under normal pressure, in a fluorinated compound in a liquid state at room temperature under normal pressure, to prepare a solution; and introducing the solution and a reactant capable of reacting with the organic raw material but incapable of reacting with the fluorinated compound into a supercritical fluid, to allow to react with each other under a supercritical condition, and thereby to form a coating of a reaction product on a substrate.

[3] A supercritical treatment method, comprising: dissolving an organic raw material in a solid state at room temperature under normal pressure, in a fluorinated compound in a liquid state at room temperature under normal pressure, to prepare a solution; and introducing the solution and a reactant capable of reacting with the organic raw material but incapable of reacting with the fluorinated compound into a supercritical fluid, to allow to react with each other under a supercritical condition, and thereby to make solid fine particles of a reaction product.

[4] The supercritical treatment method as claimed in any one of claims 1 to 3, wherein the supercritical fluid is supercritical carbon dioxide.

[5] A supercritical treatment apparatus, comprising: a sealable raw-material vessel into which a solution containing at least one organic raw material dissolved in a fluorinated compound is introduced under atmospheric pressure, a high-
5 pressure vessel in which a supercritical fluid is stored, a liquid pump for pressurizing the solution and introducing the pressurized solution into the high-pressure vessel, and a mechanism for pressure-sending the solution from the sealable raw-material vessel into the solution-feeding pump, whereby allowing to cause reaction of the organic raw material in a supercritical condition inside the
10 high-pressure vessel or a reaction tank, to form a coating of a reaction product on a substrate, wherein an O-ring made from Teflon (registered trademark) is used for the raw material vessel, and a metal gasket or a metal O-ring or an O-ring made from Teflon (registered trademark) is used for the high-pressure vessel.

15 [6] A supercritical treatment apparatus, comprising: a sealable raw-material vessel into which a solution containing at least one organic raw material dissolved in a fluorinated compound is introduced under atmospheric pressure, a high-
pressure vessel in which a supercritical fluid is stored, a liquid pump for pressurizing the solution and introducing the pressurized solution into the high-
20 pressure vessel, and a mechanism for pressure-sending the solution from the sealable raw-material vessel into the solution-feeding pump, whereby allowing to cause reaction of the organic raw material in a supercritical condition inside the high-pressure vessel or a reaction tank, to make solid fine particles of a reaction product, wherein an O-ring made from Teflon (registered trademark) is used for
25 the raw material vessel, and a metal gasket or a metal O-ring or an O-ring made from Teflon (registered trademark) is used for the high-pressure vessel.

[7] The supercritical treatment apparatus as claimed in claim 5 or 6, wherein

the supercritical fluid is supercritical carbon dioxide.